

E. Jacobs. Truss Bridge.

N^o 26,680.

Patented Jan. 3, 1860.

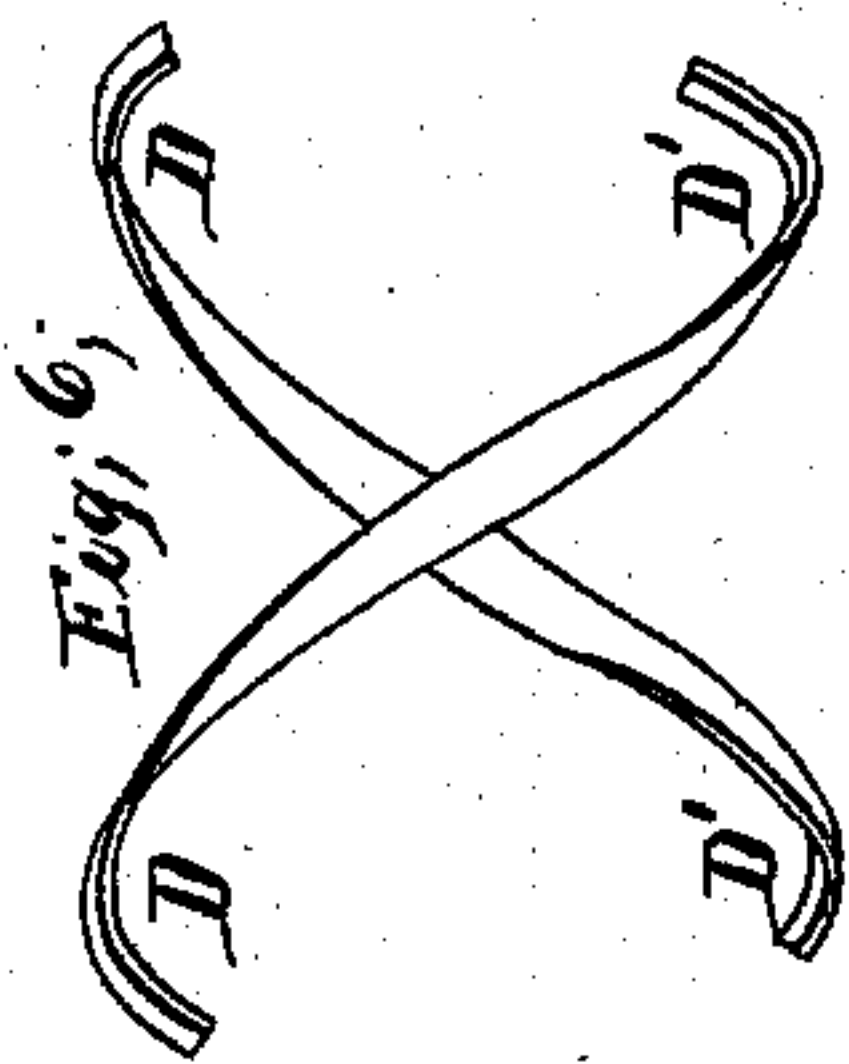
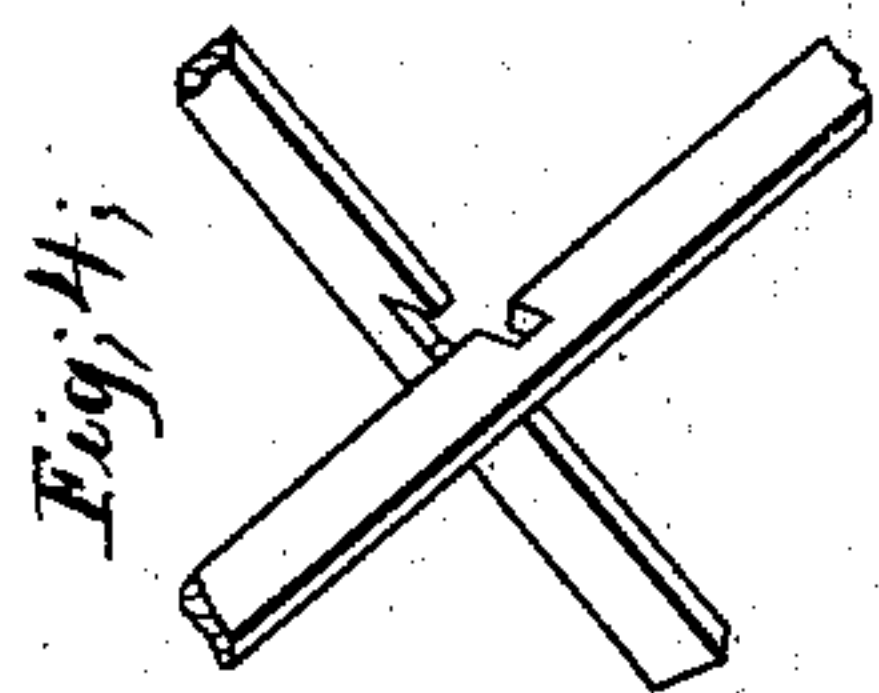
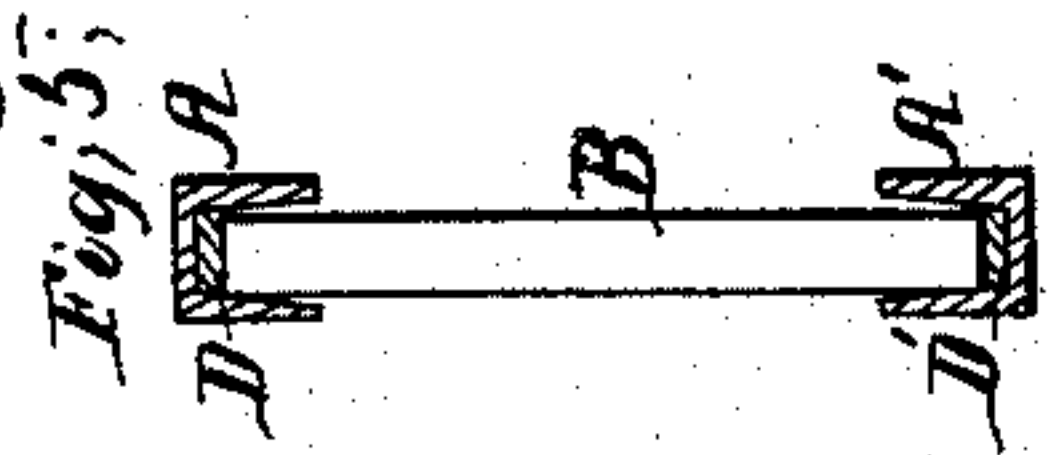
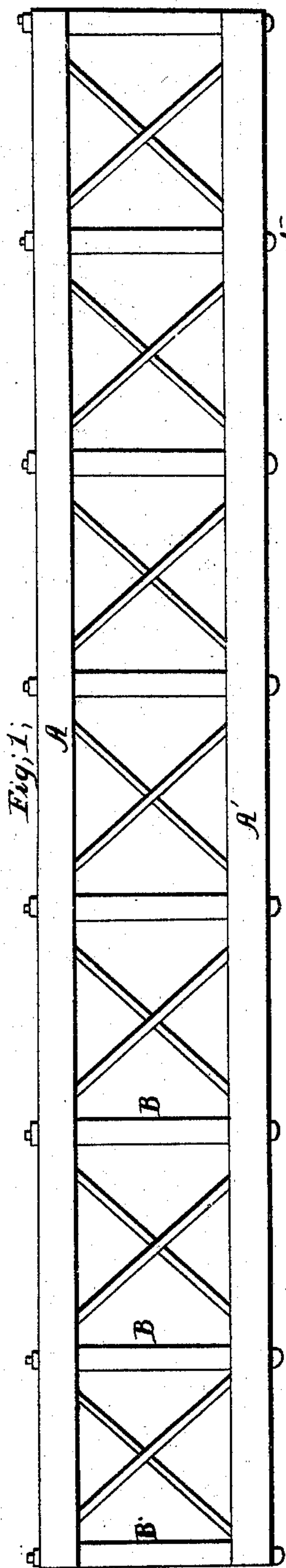


Fig. 3

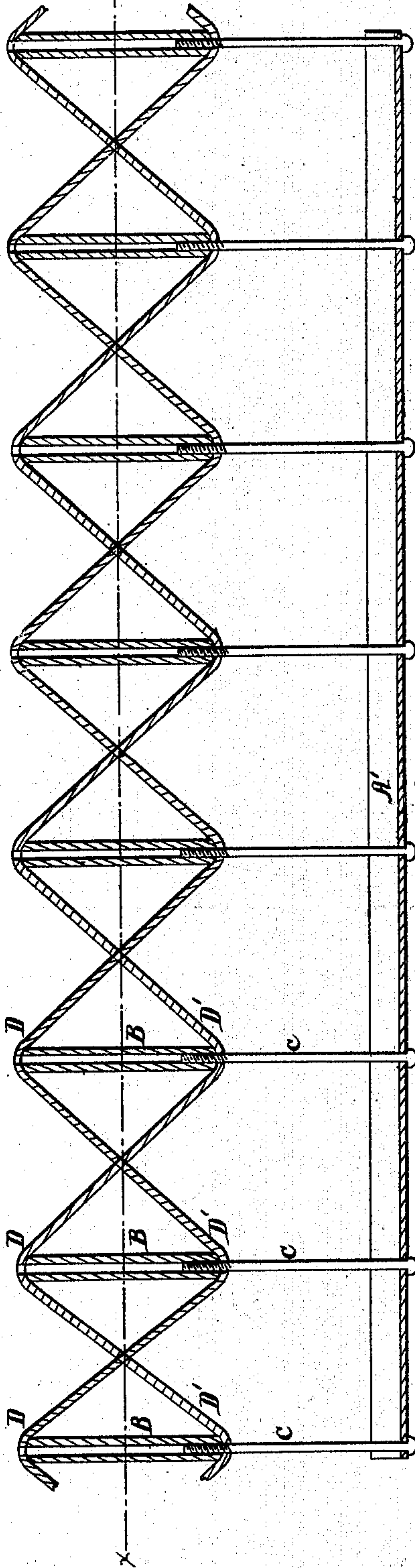


Fig. 3



UNITED STATES PATENT OFFICE.

ENOCH JACOBS, OF CINCINNATI, OHIO.

TRUSS-FRAME FOR BRIDGES.

Specification of Letters Patent No. 26,680, dated January 3, 1860.

To all whom it may concern:

Be it known that I, ENOCH JACOBS, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and Improved Truss-Frame for Bridges and for other Like Purposes, which I verily believe has not been used or known prior to the invention thereof by your petitioner hereof; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and references marked thereon.

The nature of the invention consists in the combination of double angle iron rails with certain arrangements of vertical and oblique braces and tie rods hereinafter described.

Figure 1 of the drawings represents an elevation of the truss or a length thereof. Fig. 2 represents a vertical longitudinal section through the central line of the truss the upper rail 3 being separated from the braces and tie rods. Fig. 3 represents a horizontal section through the truss in the line x, x , of Fig. 2. Fig. 4 represents the interlocking of zigzag braces with each other at their intersection. Fig. 5 shows the reception of the brace tubes in the inner part of the double angle iron rails. Fig. 6 shows the method of twisting the oblique braces at the crossing to avoid notching them together.

Similar letters represent the same devices in all the drawings.

A represents the upper and A' the lower rail of the truss, the hollow parts facing each other in Fig. 1 and as seen in the sectional view Fig. 5.

B, B, B, &c., represent the brace tubes. C, C, C, &c., the vertical tie bolts. D, D, D, &c., the zigzag cross braces.

This truss consists of few parts, and possesses great simplicity and strength. The greatest point perhaps in the composition of the truss consists in the use of the double angle iron for the upper and lower rail. This rail is from a single bar rolled in form by passing it several times through each of several rollers of a series, until it is brought into the U form, but is left much thicker and heavier at the bend than near to the ends, as shown in section in Fig. 5, where the rails are represented as embracing the

brace-tube B. The angle iron thus constructed constitutes three sides of a quadrangular iron pipe, one of the shorter sides being left open for receiving the oblique or zigzag braces and the tubular braces. These rails are left very heavy over the bend to allow for the holes to be drilled for passing the screw bolts, and also to give additional strength to prevent swaying from side to side. The greater length of this section of the rail is in its vertical sides, as here is needed its greatest strength to bear the weight that may be put upon it. This form of the angle iron rail besides giving great vertical and lateral strength, forms a close strong box against whose inner surface abut the upper and lower bends of the oblique braces in the form of a short bend as seen in Fig. 2, and upon the inner faces of each of the bends are received the corresponding ends of the tubular braces, B.

Within the tubular braces and exactly filling the bore thereof are received the screw bolts (C) having a head at the lower end and a screw and nut at the upper end. These tubular braces give the greatest strength of any form that the same weight of metal can be put into as a brace.

The oblique braces D, D', which are designed to be continuous from end to end of the truss frame are made to cross each other at nearly a right angle, are represented as notched or halved together in Fig. 4. But as this diminishes considerably the strength of the oblique braces, in order to avoid the weakening of the metal I have substituted for the notching of the braces at the crossing thereof the twisting of each brace at the crossing through 90 degrees or a quarter circle, which movement will bring the bars of the oblique braces into mutual contact by the flat faces thereof. This preserves the whole strength of the bar, and is therefore preferable in trusses of great length. Fig. 6 shows this mode of twisting the oblique braces at the crossings.

Having now described the several elements which are combined to form my truss for bridges and for other similar purposes and the method of putting the same together, and the advantages of this structure over others now in use in respect to cheapness,

simplicity, strength, and durability, I proceed to state what is claimed as the invention.

What I claim as my invention and desire
5 to secure by Letters Patent is,

The combination of the upper and lower double angle iron rails with the tubular braces and tie rods and the oblique inter-

locking braces, to form a bridge truss, all arranged and operating in the manner substantially as set forth. 10

ENOCH JACOBS.

Witnesses:

ALEXANDER JOHNSTON,
O. P. RANSOM.